

SEQUENCE LISTING

<110> The University of British Columbia

<120> Regulation of Embryonic Transcription in Plants

<130> 4810-58741

<140> PCT/CA 00/00907

<141> 2000-08-04

<150> US 60/147,133

<151> 1999-08-04

<160> 23

<170> PatentIn version 3.0

<210> 1

<211> 12

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> misc_signal

<222> (1)..(12)

<223> CE3 element at 381-369 bp

<400> 1

aaacattccc tc 12

<210> 2

<211> 12

<212> DNA

<213> Artificial sequence

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<221> misc_signal

<222> (1)..(12)

<223> consensus sequence

<400> 2

tcgcatgtccc tc 12

<210> 3

<211> 28

<212> DNA

<213> Artificial sequence

<220>

<221> primer

<222> (1)..(28)

<223> A:gtcctt

<400> 3
ctagtagatt ggttggttg tttaa

25

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<211> 27
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<213> Artificial sequence

<220>
<221> primer
<222> (1)..(27)
<223> AtproRV

<400> 4
tgtatgttt gtgtoggaaa ataattgg

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<211> 27
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<213> Artificial sequence

<220>
<221> primer
<222> (1)..(27)
<223> AP1

<400> 5
ggatataat aagactcaat atagggc

27

<210> 6
<211> 25
<212> DNA
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<220>
<221> primer
<222> (1)..(25)
<223> Bnwalk1

<400> 6
aaagattgga gagatggtta tgagg

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<210> 7
<211> 18
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<213> Artificial sequence

<220>

<221> primer
<222> (1)..(13)
<223> AF2

<400> 7
atataggggt agagggg

13

<210> 8
<211> 25
<212> DNA
<213> Artificial sequence

<220>
<221> primer
<222> (1)..(25)
<223> Enwalk2

<400> 8
tggaaagaag caaaggttga aaagg

25

<210> 9
<211> 24
<212> DNA
<213> Artificial sequence

<220>
<221> primer
<222> (1)..(24)
<223> Lawalk1

<400> 9
tatagtttgt ggtaagacga gagg

24

<210> 10
<211> 24
<212> DNA
<213> Artificial sequence

<220>
<221> primer
<222> (1)..(24)
<223> Lawalk2

<400> 10
gtcaatggga agaaacagag gttg

24

<210> 11
<211> 25
<212> DNA

<213> Artificial sequence

<220>

<221> primer

<222> (1)..(25)

<223> BnproFW

<400> 11

atgaattcac caaagaaaca actcg

25

<210> 12

<211> 26

<212> DNA

<213> Artificial sequence

<220>

<221> primer

<222> (1)..(26)

<223> BnproRV

<400> 12

aggaattcgg tttttttttt taggag

26

<210> 13

<211> 23

<212> DNA

<213> Artificial sequence

<220>

<221> primer

<222> (1)..(23)

<223> LaproFW

<400> 13

cagattaacc ggtaaaattc gcc

23

<210> 14

<211> 23

<212> DNA

<213> Artificial sequence

<220>

<221> primer

<222> (1)..(23)

<223> LaproRV

<400> 14

tcttcagttt tcttcagttt att

23

<210> 15
 <211> 393
 <212> DNA
 <213> Artificial sequence

<220>
 <221> promoter
 <222> (1)..(393)
 <223> transcriptional regulatory region

<400> 15
 agatctaaga acacacatto cctcaaattt taatgcacat gtaatcatag tttagcacaa 60
 ttcacaaaata atgtagtatt aaagacagaa atttgtagac ttttttttgg cgttaaagga 120
 agactaagtt tatacgtaca ttttatttta agtggaaaac cgaaattttc catcgaaata 180
 tatgaattta gtatatatat ttctgcaatg tactattttg ctatttttggc aactttcagt 240
 ggactactac tttattacaa tgtgtatgga tgcattgagtt tgagtataca catgtctaaa 300
 tgcattgcttt gcaaaaacgtc accgaaccaca aaagaggatc catgcaaata catctcatag 360
 ctctctccat tattttccga cacaacacaga gca 393

<210> 16
 <211> 900
 <212> DNA
 <213> Artificial sequence

<220>
 <221> promoter
 <222> (1)..(900)
 <223> transcriptional regulatory region

<400> 16
 aaggcttacc ctattagtgg aaagttgaaa ctttgttccc tactcaattc ctagtgtgtg 60
 aaatgtatgt atatgtaatg cgtataaaaac gtagtactta aatgactagg agtggcttct 120
 gagacagatg agagatggga gcagaactaa agatgatgac ataatcaaga accaatttga 180
 aaggctctca ggtttgaatt ctattcgaga atgtttttgt caaagatagi ggcgatcttg 240
 aaccaaagaa aacttttaaa aaatcagtat caggttacgt tcatcacaat aaaaagtgt 300
 ctatgatctg atgttaattt tagactaaa gagctctctta agattcactc atgttgagc 360
 atcaaatctc aaataatata ttttagatca ttgtgctta atcaaatctc caatcattat 420
 ttaatgaatt taagatagag atttgcaat aaacacattc agagaaata ctatgatctc 480
 ctcaatttat cagatgttat gcaatcaga tctaaataaa caatctctct caaattttta 540

ngcacaatgta atcatabgttt agcacaattc aaaaaataatg tagtattaaa gacagaaatt	600
tgtagacttt tttttgggtt taaaggaaag ctaagtttat acgtacattt tattttaagt	660
ggaaaaacga aattttccat cgaaatatat gaatttagta tatatatttc tgcaatgtac	720
tattttgcta ttttggcaac tttcagtgga ctactacttt attacaatgt gtatggatgc	780
atgagtttga gtatcacat gtctaaatgc atgotttgcg aaagctaag gaccacaaaa	840
gaggatccat gcaaatatat ctcatabgtt cttccattat tttccgacac aaacagagca	900

<210> 17
 <211> 1588
 <212> DNA
 <213> Artificial sequence

 <220>
 <221> promoter
 <222> (1)..(1588)
 <223> transcriptional regulatory region

<400> 17	
ctgaattcac caaagaaaca actcagatgc ttatccatct cctcataacc atcgctccac	60
tcttggcctt caccgttttc ggttcgggtt totacatgcg aaccgggccc aaaccggttt	120
acctcgltga gtactcatgc taccttcacg caacgcattg tagatcaagt atctccaagg	180
tcatggatat cttttatcaa gtaagaaaag ctgactcttc tgggaacggc acgtgggatg	240
actcgctgty gcttgacttc ttgaggaaga ttcaagaacg ttcaggtcta ggcatgaaa	300
ctcagggggc cgaggggctg cttcaggtcc ctcccggaag gaattttgog gggggcgctg	360
aagagaacga gcaagttatc attggtgggc tagaaaaatc attcaagaac accaaagtta	420
acctaaaga tatagctata cttgtggtga actcaagcat gtttaattca actccatgcg	480
tctccggcat ggtcgttaac accttcaagc tccgaagcaa cgttaagaagc ttttaacctg	540
gtggcatggg ttgtagtgcg gggttatag ccattgatct agcaaaaggac ttgtgtcang	600
tccataaaaa taagtaigct cttgtgggtg gcacagagaa catcacttat aacatttaag	660
ctggtgataa taggtccatg atggtttcaa attgcttgtt caggtttggt gggacgcta	720
tatttatctc caacaagcct agagatcgta gacgttcaa gtaagajcta gtccacaggj	780
tttgaaacg taagaaact gacgcaagt ctttctgtg cgtgtaaaag agagacattt	840
agacgggta atcgggagc acttcttca agacataac cgtattttt ggcggaggg	900
tcagtaaaa catatcaagc ttgttttgt tgaattttc gtaagajag aiaattttt	960

tttttgttac	tttcattggg	aagaaacttt	tcacagataa	aatcaaacat	tactacgtcc	1020
eggattttba	aatttgtatt	gaccattttt	gtatcacatg	eggaggcaga	gcctgtgattg	1080
atgttgtaga	gaagaacota	gocctagcac	cgatcgatgt	agaggcatca	agatcaacgt	1140
tacatagatt	tggaacacat	tcctctagct	caatatggta	tgagttggca	tacatagaag	1200
caaaaggaag	gatgaagaaa	ggtaataaag	tttggagat	tgctttaggg	tcaggcttta	1260
agtgtaacag	tgcagtttgg	gtggctctaa	acaatgtcaa	agcttcgaca	aatagtccct	1320
gggaacactg	catcgacaga	taccgggtca	aaattgattc	tgattcaggt	aagtccagaga	1380
ctcgtgtcca	aaacggctgg	tcctaataaa	cgatgtttgc	tctctttcgt	ttctttttat	1440
ctgtttataat	aatttgatgg	ctacgatgtt	tctcttggtt	gttatgaata	aagaatgcaa	1500
tgggtgtcta	gtatttgatt	gttttacatg	tatgtatctc	ttatttacat	gaaattttta	1560
aaagctctaaa	aaaaaaaaacg	gaattccg				1585

<210> 18
 <211> 1069
 <212> DNA
 <213> Artificial sequence

<220>
 <221> promoter
 <222> (1)..(1069)
 <223> transcriptional regulatory region

<400> 18	
cagcttaaac	ggtaaaattg
gctgtacat	atatttacca
ctgagtaaag	acatcagtta
	60
atgatttggt	gttactcaat
tgggtcaagt	gtattattat
atgtgtttgt	tataataaag
	120
gtaguaagta	aatttactaa
gaatgtgttt	ttccaatgtg
attgtctttt	ggctctctag
	180
gtttgaatcc	tactcgagaa
gactaatttt	aatttacttg
caaaaataga	aatcaattta
	240
taagtgttta	aacaaatoga
tggatataat	gattagtgtat
cactcttagg	ttttgatcca
	300
actcgagtat	tgagtattga
aggtcttttt	caataaaaaa
cttgattttt	aaatttgctt
	360
tttgagttaa	aaagtcttta
atattctctc	tttgttttaa
tgggttttgt	ttgcatttta
	420
ttaagttaat	tttttcaatt
taataattta	tctatctatg
tcctgaaagt	tttatttgat
	480
atcaactttt	tttaattttt
tacattatca	ttctggtaat
gtttgagtta	agctatcttg
	540
gacaaatatt	tttttatctc
ttattcaaga	tttaaacctc
acacacatat	cagtcagaga
	600
ctagtgagat	tcacccaatt
aattgttaaa	acaaattttt
cttaagatac	taacattttt
	660

atttaattatt cggatcagta ttcttaata agaataataa acnaattcaa tagttacaga	720
taaaaaactta tatagacttt ttctatttga atataaaaagt atcaatatat tatagacaat	780
atttataaag ttaaaaaatad aatattttata tttttttatat atttatttca aattgaaaag	840
cattactttot atcgaaatga atttttagtat attaattaat atttttttaa tgggaactact	900
ttctattttt ggcacotttc atctgaactac taattttatt caatgtgtat goatgcata	960
goatgagtaa tacacatgtc tatataaatg catgtaaaaa gtaacggacc acaaaaagtg	1020
atccatacaa atacatctca tggcaccttc tccgacacaa aactgaaca	1069

<210> 19
 <211> 972
 <212> DNA
 <213> Arabidopsis thaliana;

<220>
 <221> promoter
 <222> (1)..(972)
 <223> FAE1 promoter

<400> 19	
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agttgaaagt tgaacttttg ttccctactc aattccatgt tgggttaaatg tatgatatg	120
taatgggtat aaaacgtagt acttaaatga ctaggagtgg ttcttgagac cyatgagaga	180
tgggagcaga actaaagatg atgacataat taagaacgaa ttgaaaaggo tcttaggttt	240
gaatccattt cgagaatggt ttgtcacaag atagtggcga ttttgaacca aagaaaaaat	300
ttaaaaaate agtatccggt tacgttcatg caaataaaaa gttgtctagg atctgattgt	360
aattttagac ttaagaggtc tcttaagatt caatcttggc tgtgtacaaa actacaaata	420
atatatttta gactatttgg ccttaactaa acttccactc attatttact gaggttagag	480
aatagaacttg cgaataaaca cattcccgag aaatactcat gttccataa ttagtacag	540
gttatgccaa tcatatctaa gaaacacat tccctcaaat tttaatgac atgtaactat	600
agtttagaac aattcaaaaa taatgtagta ttaagagacg aatttttag atttttttt	660
gggttaaaag gaagacaaag ttataacgta catttttatt taagtgaac accaaattt	720
ttattttaa tatatgaatt tagtatatat attttttaa ttatattt ttttattt	780
ttttttttaa ttttttatt attttttt aaattttt tatatttatt tttttttt	840
ttttttttaa attttttt tttttttt tttttttt tttttttt tttttttt	900

tacatctcat agcttctctcc atttattttcc gacacaaaca gagcaatgac gtcctgttaac 960
gttaagctcc tt 972

<210> 20
<211> 1790
<212> DNA
<213> Brassica napus;

<220>
<221> promoter
<222> (1)..(1790)
<223> FAE1 promoter

<400> 20
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ccatcgctcc actcttttgc ttcacggttt tcgggttcgggt totctacato gcaacccggc 120
ccaaaacgggt ttacctcggtt gactactcat gctaccttcc accaacgcat tctagatcaa 180
gtatctccaa ggctcatggat atctttttatc aagtaagaaa agctgacccct totcggaacg 240
gcaagtggga tgaactcgctg tggcttgact tottgaggaa gattcaagaa cgttcaggtc 300
taggggatga aactcacggg ccgagggggc tgcttcaggt ccttccccgg aagacttttg 360
cggcgggcgcg tgaagagacg gagcaagtta tcaattggtc gctagaaaat ctattcaaga 420
acaccaacgt taacctataa gatataggta taactgtggt gaactcaagc atgttcaatc 480
caactccatc gctctccggc atggctgcta acactttcaa gctccgaagc aacgtaagaa 540
gcttttaact tggtagcatg gggtgtagtg ccggcggttat agccattgat ctagcaaaag 600
actgtgtgca tctccataaa aatacgtatg ctctgtggtt gagcaacagc aaatccactt 660
ataacattta cgttggtagt aataggtcca tcatggcttc aaatggcttg ttccgtgttg 720
gtggggcgcg tatttttgctc tcaacaagc ctggagatcg tagacgttcc aagtaagagc 780
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taatatcaac gttacataga tttagaaca ctctatctag ctcaatctag tatgtgttg 1200

catacataga agcaaaaagga agyatgaaga aaygtaataa agtttggcag attgotttag	1260
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caaatagtcg ttgggaacac tgcacagaca gataccgggt caaaattgat totgattcag	1380
gtaagtcaga gactcgtgto caaaaaggto ggtcctaata aacgatgttt gctctcttct	1440
gtttctctct atttggtata ataatttgat ggctacgatg tttctcttgt ttgttatgaa	1500
taaagaatgc aatgggtgto tagtatttga ttgttttaca tgtatgtatc tottattcac	1560
atgaaatttt taaacgcta aaaaaaaaaa oggaattcag atgacgtcca ttaacgtaaa	1620
gtctctttac cattacgtca taaccaacct ttccaacctt tcttctcttc cgttaacggc	1680
gacgtctgac ggaaaagcct atcggtttac catagacgat ctccaccact tatactatto	1740
ctctctccaa cacaacctca taacctctgc tcaactcttt goottcaccg	1790

<210> 21
 <211> 1210
 <212> DNA
 <213> Lunaria annua;

<220>
 <221> promoter
 <222> (1)..(1210)
 <223> FAK1 promoter

<400> 21	
cjccggggag ttccagetta accggtaaaa ttggcctgta catatattta ccaactgagta	60
aagacatcag ttaatgattt gttgttaact aattgggcta agtgtattat tatatgtgtc	120
gtatataata aaggtagaac gtaaattttc taagaatgtg ttttccaat gtgattgctc	180
ttgggcctct taggtttgaa tctactcga gaagactaat ttaattttac tggcaaaaat	240
agaaatcaat ttataagtgt ttaaaccaat cgatgggtata actgattagt gacactctt	300
aggtcttgat ccaactcga ccttgagtaa tgaacgcttc tcttaataaa aatcttgatt	360
tttaaatcgg cctctcagat aaaaaagctc ttaattttt ctcttggttc taatgggttc	420
gtcttcgact ttataagctt aattctctca atttaatttt ttatctatca tcttctgtta	480
agttttattt ggcacaaact tgttttactt ttctacctca taatttttga acttttttag	540
tttaatttga cgttcaaat atttttata ttctatttca atttttttca ctctttctat	600
acttttttat agtttttga gattttttt atttttttca atttttttat tcttttttat	660
atttttttat ttttttttat atttttttca gtttttttca atttttttat aaaaatttat	720

caatagttac agataaaaaac ttatatagac ttttttattt ggaatataaa agtatbaata	780
tattatagac aatatttata acgttaaaaaa tacaatatit atatttttta tatattttatt	840
tcaaatggaa aagcattact totatogaaa tgaatttttag tatattaatt aatatttttt	900
taatcggaat aattttctat ttgggcacot ttcattctgac tactaattta tttbaatgtg	960
tatgcattga tgagcatgag taatacacat gtctatataa atgcattgaa aacgtaacgg	1020
accacaaaag tggatcata caaatacato tcattcgacc ctctccgaca caaaactgaa	1080
caatgaagtc tgtgaacgta aaactccttt accattacgt cataacaaac tttttbaacc	1140
tctgtttctt accactgacg gggatcctcg ccggaaaagg ctctcgtctt accacaaaag	1200
atctccacca	1210

<210> 22
 <211> 1141
 <212> DNA
 <213> Artificial sequence

 <220>
 <221> promoter
 <222> (1)..(1141)
 <223> consensus sequence of A.t., L.a., and B.n. FAE1 promoters

<400> 22	
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nmkskrkwt	60
warmyckyrw wynksrwwk gwykkkwybc anntsbyrha rrwkdmtay bmtmtnkwgk	120
tgwrhrywrw rambdtvdhh yvtamnnawt tmcmmdkddk rtrwwwkknn natgwdddtk	180
yhmwnnngob tvtwmvrykt drdwsbkrrn ygmbwwknws ydvtyywww ddmekrkrrr	240
wvrtgrmrn ymvawbtahr rrynnwtba mayrrwtmn nnnnakamok rakywgnra	300
brnstcttwk skttkvtsc wannoragda nkdhkwwkws aamgyvwnnn nnnnwtykkk	360
rhbarwdwww hsawkkwhan aahysrkkt bykrktmvrn nggttmwkrn wwywkmmdm	420
wbatynnnnn ggrtyyygwk nkkmwtyykw kannokwraw dhktcthnni twwkmktywn	480
nwywksmtng kshrbaaavy twymwwrry ahannnnwdy wwkaactwyky kvoskwwnny	540
aawtyksswn ytrtyyrukt nnsrwrsdt nsmrannya rabhyjykn trwbwsntw	600
bhbradaahy wbmmybake kmkawykk kyapagisan nnnnnnnnnn nnnnatard	660
lyyaaerwya mnnakwytyk kaannyyth nnnwwarwn atkrmtmk nnnnnnyw	720
knannnnakn warknyaaa wkaakkhr wankwamrjw hdaabttid krongjyky	780

tttannntyr gvvntaard gwannnnnnn nnnnnnnys dmwvtwwaya nygtannnnn	840
nnnnayaww nkwytttdir wrbaytannn nrmayyygay addyayymsd todawmkwda	900
tkmnattyn rgtawttnnn nnnmtmktky ybhaawnnnn ngkmtaht wwvckatkt	960
kgwmnottt orkyknotw yowmtttttt wyaatrkwkt natgsmtrcn atgwknnyw	1020
tgwktrwtay rmatrwmkaw wvmatgswn tnsyarwayk traykgwyyn acawrwrwgk	1080
atcymtdnaw wtacatswma thkynwhmok ennnnnnnnt mmramamaaa nodgarywnn	1140
n	1141

<210> 23
 <211> 1055
 <212> DNA
 <213> Artificial sequence

<220>
 <221> promoter
 <222> (1)..(1055)
 <223> consensus sequence of A.t. and L.a. FAE1 promoters

<400> 23	
actakwaaa rmyakyagwt nntgrtttkgt tgktwyyean ntqkroyarr wjkmttayym	60
catkwgttgw awrtwrwaam ktkrkwmst amnnawttmo tarkwrtgtr wwtknannat	120
gtwwtgywm tnnngostmt warryktrrw wcytarwyga swagnastrr titywrwkwm	180
ckrksarara trgrarymra wytawarrtg wtkamayaaw tmnnnnnnak aackrattwg	240
wraksnotet taggtttkra toowaytoga qwatkkwktw ktsaamgmtw nnnnnnttt	300
tkaamyaaar wmwswatttw waaawtsrkt wtyygrktam nnnnjjtowl rmwawtwkmw	360
nktkgttwn nnjgrtytgw ttkkmatttt ikannattaa wkwtctmnn ttaakattyw	420
atcywksmtn gtsyryaaar ytwyawwtrr yayannntk ttwkactwt ykroottann	480
taawytksa notarttrwk tnownagskt asmarayara ywtjykwnta waywewtwyy	540
yragaawtam ymmisatoyc ataattagt agaggstakg nnnnnnnnnn caatcarwko	600
taasaabama nattoyttya annatytwan natgownatk taatrwttnn nnnagtwttn	660
nnnnkmas atwyaaaamt aatkyartan ttamapayar aayttttan ngacttttn	720
nnatggmtn taarpwann nnnnnnnnnn ngawwrtt tatanajnn nnnnnnnay	780
attntatt twwrtkann nnnnnnaay ygaaawknr taww thawn kiwar garr	840
tnajttann nnnnatatt tykyatng kactyttts atatttggg amttttky	900

kyactactam tttattwcaa ttttatatysa tgcattgagyw ttagtantaac acatgtctaw	960
airmatgwt ngyaaaaagt aacggaccac aaaagwggat ccattcaaat acatctcatm	1020
gwyctctnn nnnnnntcag acacaaaacw garca	1085